

# CS-iGPM-02 Wireless Pressure & Temperature Monitor

Operation Manual

(CS-iGPM-02-SS)

(REV:A)



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# CS-iGPM-02 Wireless Pressure & Temperature Monitor

## Operation manual

### 1 Overview

The Wireless Pressure & Temperature Monitor is mainly used in the integrated pressure and temperature monitoring of oil, steam, heating, etc. in pipeline and Realizes NB-IOT wireless remote transmission of data to the management platform. When the pipeline pressure is lower than or higher than the alarm threshold, the alarm information will be reported to the NS cloud platform or operator base station, and the manager will obtain the information at the first time and handle the site quickly, so as to facilitate the equipment management and maintenance, protect the personal safety and reduce the property loss.



Considering the possible leakage risk, laser welding technology is used for the part of sensor contacting with natural gas, and multiple leak detection processes are used in the production process to prevent the risk of leakage.

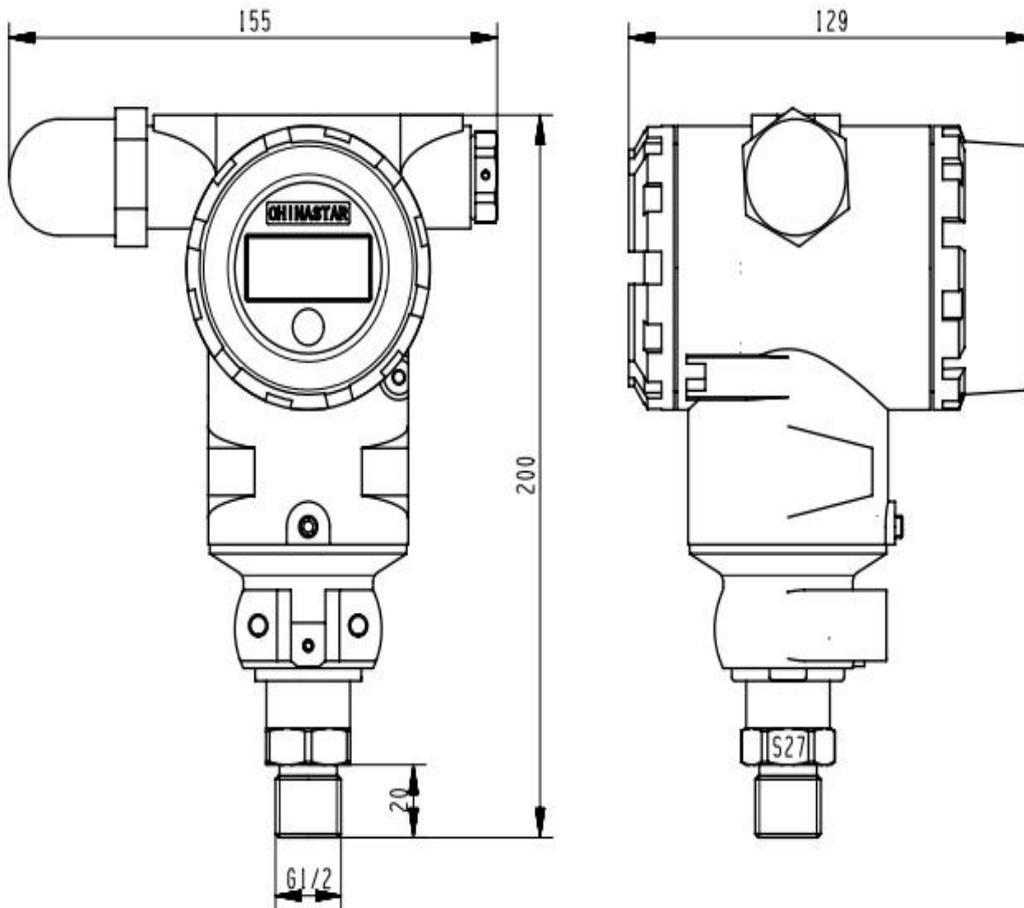
At the same time, the monitor is designed in consideration of various complex environments at the installation site. The shell is made of explosion-proof aluminum alloy. The product meets the requirements of explosion-proof design and is suitable for various applications of wireless pressure and temperature integrated monitoring. The sensor and antenna are integrated with explosion-proof shell to prevent corrosion and accidental damage.

The monitor has the following characteristics:

- ① LCD display enables easy numerical reading

- ②3.6V lithium battery power supply
- ③Pressure & Temperature integrated measurement
- ④Ultra low power consumption  $\leq 15\mu\text{A}$ , Battery life  $\geq 2$  years
- ⑤Upper and lower limit alarm threshold configurable
- ⑥Sampling and sending interval configurable

## 2 Dimension



## 3 Technical parameters

The main technical indicators of the wireless pressure & temperature monitor are shown in Table 1.

Table 1 Main parameters

Name	Parameters	Remarks
Working Frequency	B1/B3/B5/B8/B20	NB-IoT
Antenna	Rod antenna	
Working Voltage	3.3~3.6VDC	
Battery Life	≥ 2 years	3.6V lithium battery power supply, ER26500(9AH), See Note 1
Max Working Current	<300mA	
Sampling Interval	10min	Configurable
Pressure Range	0~15MPa	Optional
Pressure Accuracy	±0.5%FS	Customizable
Temperature Range	(-50~150)°C	
Temperature Accuracy	±1.5°C	
Pressure Connection	G1/2	Customizable
Housing Material	Aluminum Alloy	
Ingress Protection	IP65	
Explosion Proof	--	ExdIIBT5 Gb(Evidence collection as required)
Housing Dimension	155mm*129*200mm(L*W*H)	
Ambient Temperature	(-20~85)°C	
Storage Temperature	(-40~850)°C	Battery not included

Note 1:

The battery life is measured and calculated based on the following conditions:

- ① Room temperature
- ② Battery capacity: 9000 mA·h
- ③ Regular reporting: reporting cycle 24h; network access time less than 15s
- ④ Sampling and LCD display: sampling period is 10min; LCD is on for 10s without backlight

#### 4 LCD display

The Wireless Pressure & Temperature Monitor with LCD display, convenient for field observation and setting

When using, first open the back cover and turn the switch K1 to the on position (see 5.1 battery switch image), that is, the wireless pressure temperature integrated transmitter is powered on. The

LCD panel displays the current temperature and pressure range at the same time. When the sampling time comes, the LCD panel will wake up for 10 seconds to display the current temperature and pressure range. In order to facilitate viewing in an environment with poor light, a magnetic switch is installed under the LCD panel. The magnetic steel is close to the panel to light up the LCD backlight, wake up the LCD module at the same time, and display the current sampling pressure and temperature data.

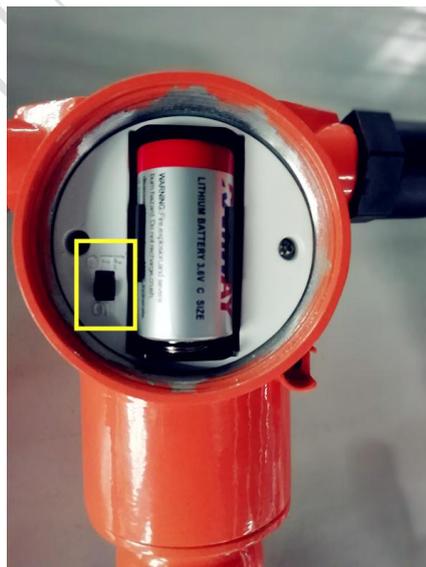


The temperature variable unit is Celsius ( $^{\circ}\text{C}$ ), and the data is displayed in the upper left corner of the liquid crystal. The pressure is in kilopascals (kPa) and the data is displayed in the middle of the panel.

## 5 Operation manual

### 5.1 Battery installation

- ① Battery model: lithium battery ER26500. (battery parameters: 2 lithium battery, 3.6V, 9Ah)
- ② Battery installation: the battery is installed at the back of the monitor. Remove the back cover to see the battery box. Please turn off the battery switch when handling the battery.
- ③ Battery switch: the battery switch is next to the battery. When the battery switch is set to on, the monitor starts to work. When the battery switch is set to off, the monitor stops working.
- ④ Battery capacity: when the remaining capacity of the battery in the timing report message is less than 5%, a low voltage alarm will be reported, please replace the battery at this time



### 5.2 Network Access Description for NB-IOT

The EMEI code will be printed on the shell of the sensor, could be used directly when accessing certain platforms. The device supports UDP & COAP communication protocols, and compatible with China Telecom Internet of Things Open Platform, we would provide codec plug in if need to connect the platform.

### 5.3 Communication protocol

The protocol could be provide from supplier.

### 5.4 Fault retransmission mechanism

If the monitor detects that there is a network access fault, it will try to enter the network again, and print the network access failure information after three failed attempts. If a pressure or temperature alarm is detected, the alarm message will be reported when the timing report or the interval sampling time arrives. The alarm message needs to be answered. If there is no response, the alarm message will be sent again 10 seconds later. When the alarm is released, a message will be sent to remind the alarm to be released.

## 6 Model Selection Guide

Model No.				
CS-iGPM-02				
↓	Transfer Method			
	NB	NB-IoT		
	↓	Frequency		
		B1	NB-IOT transfer model	
		B3	NB-IOT transfer model	
		B5	NB-IOT transfer model	
		B8	NB-IOT transfer model	
		B20	NB-IOT transfer model	
		*	If other frequency bands, please indicate	
↓				
CS-iGPM-02	NB	B8		

Examples:

CS-iGPM-02\_NB\_B8 means NBIOT transfer model, B8 band.

Note 2:

If you need to customize the pressure range, temperature range and pressure connector, please indicate separately.

## 7 Attachment

Number	Attachment	Selection explanation
1	PL2303TA (USB to UART-TTL adapter)	The customer uses it to configure products . If they don't configure, they don't need this accessory. One for a batch of orders when products leave the factory.
2	Batter: ER26500	The product comes with batteries as default setting . If additional batteries are needed, please indicate when purchasing.

## 8 Notice

### 8.1 Device net-connection failed

- A) Check whether the power supply is normal
- B) Check whether this node is added to the platform
- C) Check whether IMEI is consistent with the platform
- D) Turn on the power again to check whether there is boot information
- E) Check whether the node module (NB) is registered in the server
- F) Check whether the antenna base is loose and whether the antenna connection is reliable
- G) Check whether the SIM card has fees and whether the data service is opened
- H) For other questions, please contact the supplier

### 8.2 Information omission description

The product may fail to report due to the following reasons:

- A) In the place where the signal is not good or when the signal is blocked, a false alarm is generated
- B) SIM card is damaged or not installed properly
- C) Battery power failure or gateway power failure
- D) Other special circumstances

## 9 Statement

Chinastar reserves the right to modify the specifications and contents of this manual, and is subject to change without prior notice. Due to product updates, some details of this document may not match the product, please refer to the actual product.

Chinastar reverses the right to interpret this document.